



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,305	03/24/2004	Wenman Li	yeh-pt007	6483

7590 08/25/2006

Kao H. Lu  
686 Lawson Ave.  
Havertown, PA 19083

EXAMINER
----------

ONEILL, KARIE AMBER

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/809,305

Applicant(s)

LI, WENMAN

Examiner

Karie O'Neill

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 1-7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: In Figures 2 and 3, numeral 5 is present but is never mentioned in the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities: in paragraph [0009] line 6, "a fixed positive post" is referenced as numeral 10, but numeral 10 should be characterized as "a fixed negative post". In paragraph [0009] lines 14-15, "fan" should be referenced with numeral 19, according to the drawings.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what a “soft shell” lithium battery cell is considered to be. It is interpreted by the examiner to be a lithium ion battery.

5. Claim 1 recites the limitation “the final battery” in line 8. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear to the examiner, in line 2, what is considered to be a “regular liquid lithium ion battery”, so it is interpreted by the examiner to mean a lithium ion battery. It is unclear in line 3, what “its” shell is referring to. Examiner understands this to be the shell of the plate assemblies according to the claim.

7. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

Art Unit: 1745

regards as the invention. It is unclear what "plastic paper" is. Examiner interprets this phrase to mean a polymer sheet.

8. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what "strategically aligned" means and it given little to weight by the examiner.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeta et al. (US 2003/0162084 A1) in view of Amine et al. (US 6,858,345 B2).

With regard to Claim 1, Shigeta et al. discloses in Figures 1-4, a method of constructing a large capacity power batter and its associated cooling system, wherein the battery comprises: a plurality of lithium-ion secondary batteries (20) connected in parallel to form a battery unit (21), a temperature switch controller or temperature detecting plate (30), at least one temperature sensor (50), at least one fan (paragraph 0034), an outer case (10) with at least one array of ventilation holes (15) drilled on the surface of the battery module; and a plurality of said units (21) connected in series or

Art Unit: 1745

parallel and protected by the casing (10), where the temperature sensor is installed between said units (paragraph 0029). Shigeta et al. does not disclose expressly, the battery comprising hollow metal plates or pipes imbedded between said battery cells and the fan being installed inside the outer casing and controlled by temperature switch controller and temperature sensors.

Amine et al. discloses a one piece steel spring structure that is inserted between adjacent battery stacks (column 6 lines 29-32) and a circulating blower (fan) and a temperature sensor and controller (column 6 lines 12-14). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to insert hollow or spring structures and a circulating blower into the battery units of Shigeta et al., because Amine et al. teaches that the steel spring structures maintain space for airflow and the circulating blower provides a cooling air flow to the battery.

With regard to Claim 2, Amine et al. discloses in Figure 3D, a lithium battery where a positive plate (126) and a negative plate (128) are spaced apart by bipolar plate assemblies (122), and the shell of the positive plate assembly is made of aluminum foil coated with an insulating polymer sheet (column 4 lines 53-57). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use the materials disclosed by Amine et al. in the battery units of Shigeta et al., because Amine et al. teaches being able to easily form a stack that will allow for current flow from the negative plate to the positive plate to occur without short-circuiting.

With regard to Claim 3, Shigeta et al. discloses the battery module (21) being fixed with terminals (22) so as to be perpendicular to the end surfaces of the batteries

Art Unit: 1745

(paragraph 0027) and these battery units (21) are connected in series and protected by a casing. Shigeta et al. does not disclose the material in which the casing is made.

Amine et al. discloses the casing being made of stainless steel (column 4 line 11). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use the materials disclosed by Amine et al. in the battery units of Shigeta et al., because Amine et al. teaches stainless steel is a durable and highly accessible material.

With regard to Claim 4, Amine et al. discloses one piece steel spring structures being inserted between adjacent battery cell units and secured into place by compression bands such as steel straps tightly wrapped around the length of the battery or being secured with elastomer bands (column 6 lines 18-26). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use the materials disclosed by Amine et al. in the battery units of Shigeta et al., because Amine et al. teaches the steel spring structures providing space to maintain air flow, in Figure 4 indicated by arrows labeled A and B, between the battery units and the compression bands provide pressure across the cell layers.

With regard to Claim 5, Shigeta et al. discloses the method of constructing the battery and its associated cooling system of Claim 1, but does not disclose wherein the ventilation holes are aligned with the positions where said metal pipes or metal plates are located. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to place ventilation holes in locations aligned with the metal pipes or plates, since it has been held that it is a matter of design choice and the

rearranging parts of an invention only involves routine skill in the art. *In re Japikse*, 86 USPQ 70 and MPEP 2144.

With regard to Claim 6, Shigeta et al. discloses the battery and associated cooling system of Claim 1, wherein in a stationery application the system includes at least one fan (paragraph 0034), the temperature switch controller or temperature detecting plate (30) being placed inside of a casing or protection circuit; and the temperature sensor is installed between said units (paragraph 0029).

With regard to Claim 7, Shigeta et al. discloses the battery and associated cooling system of Claim 1 being mounted on or for use in driving a motor of a vehicle (paragraph 0002). However, he does not teach that there will be no need for a fan, temperature switch controller and temperature sensors to be installed. One of ordinary skill in the art would realize that a vehicle in motion would not need a fan or its accompanying components to be installed in the vehicle because air circulating through the vehicle while it is in motion will cool the battery on its own. It is also obvious that without these components the cost to make and purchase the vehicle would substantially decrease.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karie O'Neill whose telephone number is (571) 272-8614. The examiner can normally be reached on Monday through Friday from 8am to 5pm.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KAO



**DAH-WEI YUAN**  
**PRIMARY EXAMINER**

Karie O'Neill  
Examiner  
Art Unit 1745